

# FLIGHT

The  
AIRCRAFT  
ENGINEER  
&  
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

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## Flight

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## EDITORIAL COMMENT.



IN this issue of FLIGHT we publish tables and graphs showing the world's aviation records as they have been established from the time world's records were first recognised, *i.e.* from 1906, to the present day. In the graphical representation of the records, only the peak performances of each year are shown, while in the tables all the separate meritorious performances, which stood as records until beaten during the same year, have been included. The figures are based upon information contained in the *Bulletin* of the F.A.I., and should, therefore, be correct, although in one or two instances some doubt arises. The *Bulletin* is marred by several misprints in the figures relating to performance, and also in one instance a misprint occurs in the year column. Various other inaccuracies are met with in the official *Bulletin*, a fact to be regretted in view, not only of the official character of the publication, but also because of the wide international appeal of the subjects dealt with. To mention but one instance: Landmann's world's duration record is given in the *Bulletin* as having been established at Villesauvage, which is, of course, incorrect, the record having been established over the Johannisthal aerodrome near Berlin. The matter is not one of vital importance, certainly, but one is entitled to expect strict accuracy in an official publication like the *Bulletin* of the F.A.I.

In the tables compiled by us, any such inaccuracies, where discovered, have been corrected. On the other hand, it is possible that we may have introduced certain slight differences, notably in converting speeds into m.p.h. for the benefit of English readers. We have made use of a 20-in. slide-rule, and have used the conversion figure of 0.62 mile to a kilometre. This is slightly on the short side, and when it comes to very high speeds, such as those established during 1923, the error thus introduced may reach an appreciable amount. Since, however, official world's speed records are always homologated and only recognised in the metric system, we have thought this fact to be of relatively minor importance, as the effect is to reduce only by a fraction of a mile per hour the

## DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

- Feb. 7 .... "Airmanship at Sea," by Sqd.-Ldr. Maycock, O.B.E., R.A.F., before R.Ae.S.
- Feb. 21 .... "Aerial Photography and Survey," by Mr. H. Hamshaw Thomas, before R.Ae.S.
- Mar. 1 .... French Aero Engine Competition.
- Mar. 6 .... "Sound Detection," by Major Tucker, before R.Ae.S.
- Mar. 20 .... "The Report of the Aeronautical Research Committee's Panel on Scale Effect," by Capt. W. S. Farren.
- Mar. 24 .... British entries close for Schneider Cup and Gordon Bennett Balloon Races
- April 1 .... Entries close for Schneider Cup and Gordon Bennett Balloon Races
- April 3 .... "The British Aviation Mission to the Imperial Japanese Navy," by Colonel the Master of Sempill, before R.Ae.S.
- June 15 .... Gordon Bennett Balloon Race, Belgium
- June 21 .... F.A.I. Conference Opens, Paris
- Aug. 10 .... Tour de France for Light 'Planes

speed as converted into miles per hour. Against this may be placed the convenience of having the fractional approximation in m.p.h. By way of instance, in the case of the present world's speed record, the slide-rule gives the figure as 265.99 m.p.h., whereas the actual figure is 266.4 m.p.h. For official purposes, of course, this figure is, as seen, 429.025 km. per hour.

With regard to the significance of the records, a glance at the tables, and particularly at the graphs, will indicate the enormous progress made during the eighteen years or so. The speed has increased from the almost ridiculous figure of 25½ m.p.h. of Santos-Dumont in 1906 to more than 266 m.p.h. in 1923. The former figure would almost be a world's record for low speed at the present day. The altitude has increased from 500 ft. to 36,600 ft., or close upon 7 miles. The greatest distance covered in a single flight has grown from 721 ft. to nearly 3,300 miles, and the longest duration of a flight from 21 seconds to 37¼ hours. Thus it may justly be claimed that the progress made has been greater than even the most enthusiastic believers in flying had dared to hope.

It is well to reflect on these figures, especially at the present time, when there are those who seem to think that the end has been reached, and that there is little more to be hoped for. It is, of course, quite true that if one looks into the subject closely it is found that the progress made has been due primarily to the development of the internal combustion engine, whose power has grown and whose specific weight has dropped, until nowadays an engine of 1,000 h.p. excites relatively little curiosity, while an engine weight of 2 lbs. per h.p. is not regarded as phenomenally light.

On the other hand, the very fact that such engine development has been possible is an extraordinary testimony to the skill of aero-engine designers the world over, and if the line of progress has been mainly towards greater and still greater performance, that is due to military requirements and to the influence of the War years. Is there any reason to doubt that when, as they must be now without delay, engine improvement and progress are turned into other channels, and the object becomes cheapness and

reliability rather than extreme performance, the progress will be as great in that direction as it has hitherto been in the production of light and powerful engines? We personally think there is not the slightest reason to look to the future with anything but optimism. Progress will take place, and if it is a little slower than it was in the past, surely that is no cause for regret.

In looking over the list of records it is a remarkable fact that only one record in the four classes dealt with was put up in Great Britain—and that by an American. We are referring to the altitude record established at the Lanark meeting in 1910 by Drexel. It is true that there are other records than the four relating to speed, altitude, distance and duration. For instance, we have the satisfaction of the glorious flights of 1919, the cross-Atlantic, the Cairo-Cape, and the London-Australia. But these do not rank as records, although their practical value is unquestionable. We believe that there is one record still to the credit of a British pilot on a British machine: the altitude of 4,267 metres with a useful load of 1,500 kgs., established by Capt. C. T. R. Hill on the first Handley Page "W.8" at Cricklewood, on May 4, 1920. The other records established during that particular flight have now been "nobbled" by the American Barling bomber, and doubtless the altitude one with this load will soon be taken from us also. The question is, what are we going to do about it? Building record-breaking machines is an expensive hobby, and it is quite certain that in the present stage of the aircraft industry private firms cannot undertake it. Is it not time the Air Ministry tried to persuade the Treasury of the importance of records and got certain sums of money set aside to help our constructors? It is true that one firm, the Gloucestershire Aircraft Co., Ltd., is building, with commendable enterprise, a racing machine for this year's speed events, but things have really got beyond the "private" stage. M. Laurent Eynac regards world's records as the publicity of a country's aircraft progress. America has made a strenuous—and successful—effort to collect all the records worth having. Can we continue indifferent to these facts?

## AIR MAILS IN 1923

THE Postmaster-General communicates the following particulars of air mail traffic during 1923:—

The air letter traffic on the London-Paris service remains small, the number of letters sent having been about 23,700, as against about 28,500 in 1922. On the other hand, the air letter traffic to and from Cologne has grown rapidly, from about 400 lbs. during the first quarter of 1923 to over 4,000 lbs. during the third quarter. This tenfold growth is largely to be attributed to the partial dislocation of the ordinary mail service with Cologne caused by present conditions on the Rhine. The total weight of the letter air mails to and from Cologne throughout the year was nearly 10,000 lbs., representing some 142,000 letters. During the latter part of the year the weight of the inward air mail was over four times that of the outward. Air mail letters to Holland increased from about 9,600 for 8½ months of 1922 to about 22,000 in 1923.

The weight of parcels sent to Paris during 1923 by aeroplane amounted to about 23,700 lbs. (10½ tons), as against about 18,700 lbs. in 1922. The air parcel traffic to Holland increased substantially during 1923, and amounted for the whole year to about 11,900 lbs., as against about 5,200 lbs. during seven months of 1922.

About 315,000 letters in all are estimated to have been carried by the Cairo-Baghdad air mail in 1923, as against about 175,000 in 1922—an increase of 80 per cent.

The only non-British air mail service of which appreciable use is made by the public in this country is that from Toulouse to Casablanca (Morocco), for which about 17,000 letters were posted in 1923—an increase of about 85 per cent. over the number (9,200) posted in 1922. Growth during 1923 was steady, from about 3,600 letters in the first quarter to about 4,600 in the fourth.

### The Air Minister's Peerage

It was officially announced on February 4 that the King had been pleased to approve that the dignity of a barony of the United Kingdom be conferred upon Brigadier-General the Right Hon. C. B. Thomson, Secretary of State for Air.

### Bombing in Iraq

The following statement has been issued by the Colonial Office:—The bombing by aircraft in Iraq, which has been the

subject of recent Press comments, occurred last year. The bombing was considered necessary by the High Commissioner to preserve peace. It was not undertaken, as alleged, because taxes were in arrears, and it would be contrary to specific instructions to bomb for any such purpose. The whole question of the employment of aircraft in Iraq in support of the civil authorities is being considered afresh by his Majesty's Government.



# EIGHTEEN YEARS OF WORLD'S RECORDS

In the December issue of the F.A.I. *Bulletin* (the official organ of the Fédération Aéronautique Internationale) the various aviation records, officially recognised by the F.A.I., are summarised during the past eighteen years—that is, from 1906 to 1923. Arranged as they are in their separate classes—speed, altitude, distance and duration—each from the earliest and year by year to date, they make an interesting and valuable study, as may be judged by the tables and graphs which we have prepared in this week's issue of *FLIGHT*.

It should be pointed out that the early flights of the Wright brothers and certain early essays of other pioneers (such as Blériot, Santos-Dumont, etc.) are not included in these tables, which refer to F.A.I. records only.

As to how far an analysis or a comparative study of these tables serves as a true indication, from the technical point of view, of the progress made during the eighteen years is a question by no means easy to decide, for there are, without doubt, instances when the advance forward was more a matter of sheer luck or brute force rather than pure progress. As a matter of fact, looking at it from the technical point of view, one should examine each individual record if we desire to form a true basis for comparison.

This, however, we do not propose to do here, but we think it may be of interest to "run over" these tables and refer to one or two specific cases.

Taking the speed records first, the outstanding lesson one learns here would seem to be that increase in speed and increase in horse-power were very closely associated. Santos-Dumont and his machine call for passing reference only—and this applies equally to the distance and duration sections—for his effort, though historic, is of little interest technically.

The next step forward, by Farman, certainly points to an improvement aerodynamically, but the increase from 24 h.p. to 50-60 h.p. helped considerably. In July, 1910, we find the speed above the 50 m.p.h. mark, but again the h.p. has increased to 100 (Morane flew a Blériot monoplane fitted with a 100 h.p. Gnome).

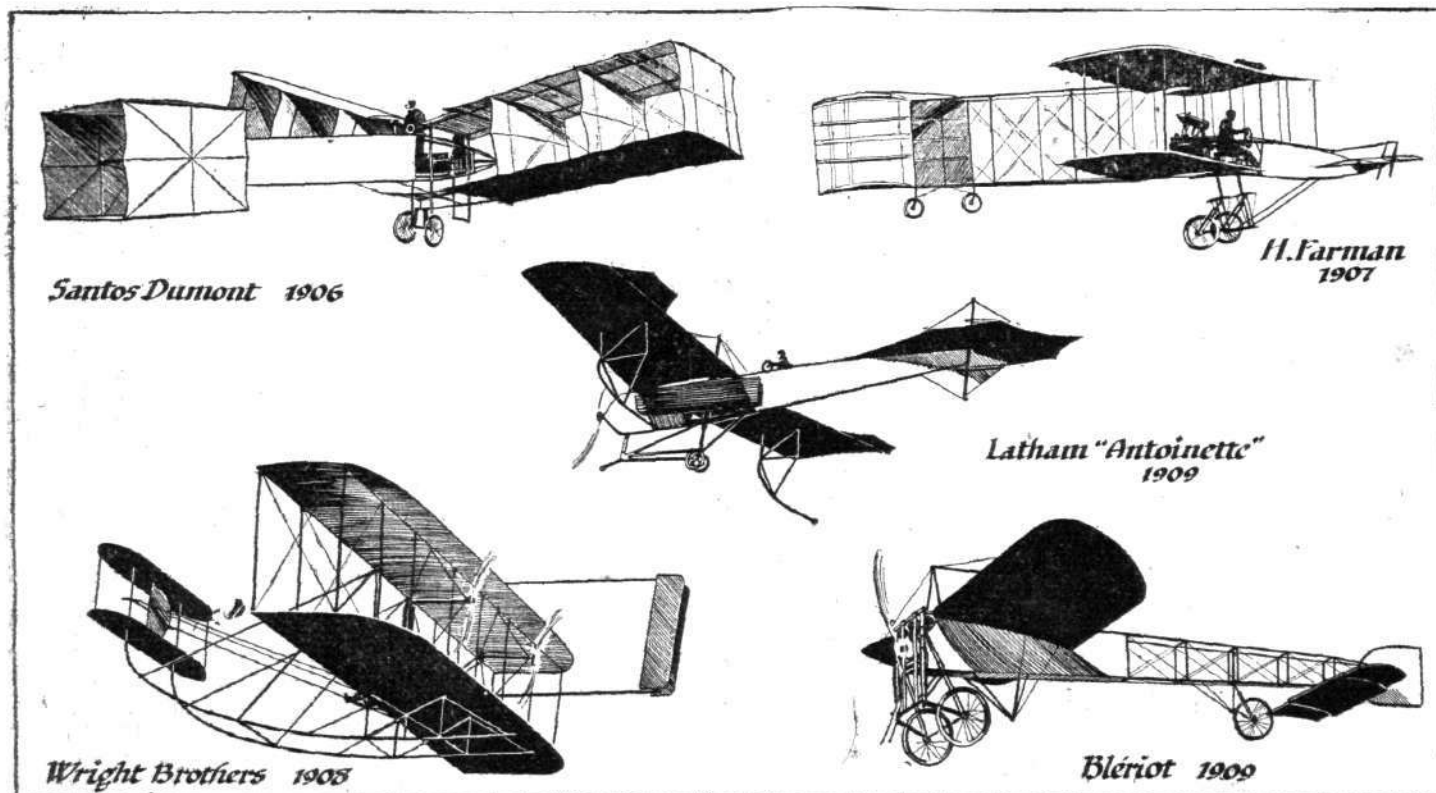
Then the speed gradually crept up until 1912, when a

marked advance was made with Vedrines and his 100 h.p. Dep. monocoque monoplane—the 100 m.p.h. mark being then reached. From this time until just before the outbreak of war in 1914 Vedrines very slowly crept up the scale, and then Prevost, also flying the Dep., but with a 140 h.p. engine, topped the list, for the time being, by just passing the 125 m.p.h. mark.

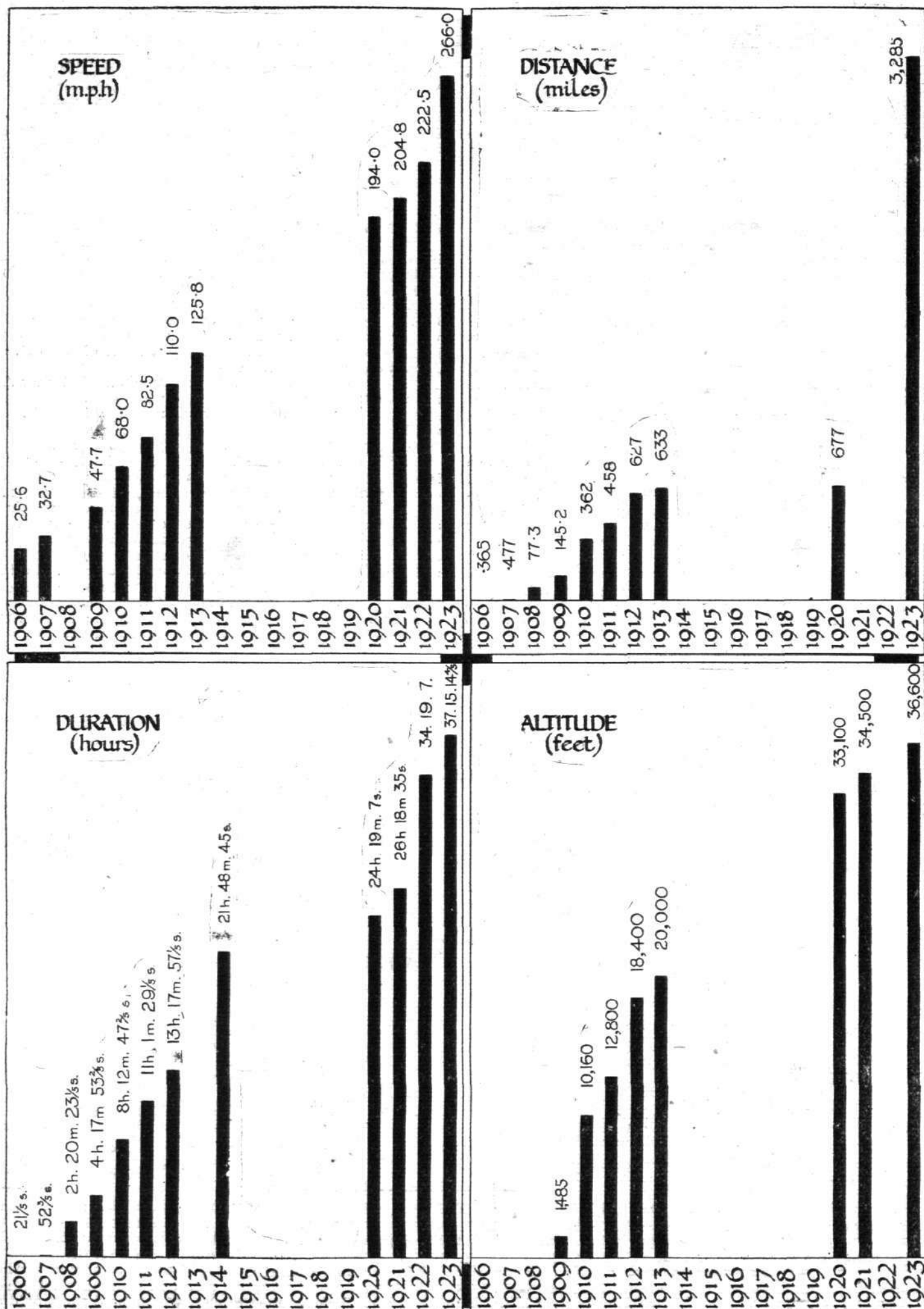
Little, we think, need be said on the period following the resumption of sporting air events to date, except that, whilst horse-power still went up by leaps and bounds with speed, there was, without doubt, a corresponding improvement in matters aerodynamic.

Turning now to the altitude records, we do not think we have very much to say here beyond remarking on the extraordinarily steady and regular advance in the figures, especially during the post-War period, when "design" certainly gained a point with its superchargers, etc. It will be noticed that the U.S.A. appears several times amongst the altitude records, whilst Great Britain makes its one and only appearance in these tables with Drexel's fine altitude flight of 6,600 ft. at Lanark on August 11, 1910.

The distance and duration tables are, we think, by far the most interesting, for here, perhaps, we have a much truer indication of man's struggle for the mastery of the air. It will be noticed that the progress made during the period 1906-1910 was remarkably rapid, some big jumps being made by Wilbur Wright during 1908. It may be of interest to note, in connection with the last two records of distance and of duration, that while there is not very much difference between them so far as actual figures are concerned, there is, we think, a considerable difference when one considers the merits of each particular case. Lieuts. Kelly and MacReady, it may be remembered, were flying a Fokker monoplane, and carried sufficient fuel on board to last them the 36 odd hours. On the other hand, Lieuts. Smith and Richter, who were flying a D.H. type biplane (400 h.p. Liberty), replenished their fuel in mid-air on no fewer than 15 occasions, from another aeroplane. Mid-air refuelling, it may be mentioned, is now officially recognised.



**SILHOUETTES OF SOME OF THE PIONEER DESIGNS AND EARLY RECORD MAKERS:** In the top left-hand corner is Santos-Dumont's weird "canard" machine, on which he created world's records for speed, distance, and duration on November 12, 1906. On the right (top) is the early Henry Farman machine, on which the next big advances were made about one year later. In the centre is shown the graceful Antoinette monoplane, on which Latham captured several records during 1909. The famous Wright brothers' biplane, shown in the lower left-hand corner, was another early record maker which was responsible for a marked advance forward during 1908. In the lower right-hand corner is the equally famous Blériot monoplane, which held the world's speed record during 1909. The dates given under the above silhouettes refer to the year of their construction as well as to the year in which they created their first record or records. Of course, the first Wright machine was built and flown in 1903, but these early attempts are not included in this collection of records, as only officially homologated records are dealt with. The first Wright machine differed slightly from the 1908 model.



**EIGHTEEN YEARS OF WORLD'S RECORDS:** The above graphs show at a glance the growth of speeds, altitudes, durations and distances from 1906 to the end of 1923. During the war period no world's records were recognised.



TABLE I.—World's Speed Records.

Year & Date.	Holder.	Place & Country.	Speed.	
			km./hr.	m.p.h.
Nov. 12, '06	Santos-Dumont	Bagatelle Fr.	41.292	25.60
Oct. 26, '07	H. Farman	Issy-les-Moulineaux ..	52.700	32.68
May 20, '09	Tissandier	Pau ..	54.810	33.98
Aug. 23, '09	Curtiss	Rheims ..	69.821	43.29
Aug. 24, '09	Bleriot ..	Rheims ..	74.318	46.07
Aug. 28, '09	Bleriot ..	Rheims ..	76.955	47.71
Apr. 23, '10	Latham ..	Nice ..	77.579	48.10
July 10, '10	Morane ..	Rheims ..	106.508	66.03
Oct. 29, '10	Leblanc ..	New York U.S.A.	109.756	68.05
Mar. 9, '11	Nieuport ..	Chalons .. Fr.	109.958	68.17
Apr. 12, '11	Leblanc ..	Pau ..	111.801	69.32
May 11, '11	Nieuport ..	Chalons ..	119.760	74.23
June 12, '11	Leblanc ..	Etampes ..	125.000	77.50
June 16, '11	Nieuport ..	Chalons ..	130.057	80.64
June 21, '11	Nieuport ..	Chalons ..	133.136	82.54
Jan. 13, '12	J. Vedrines	Pau ..	145.161	90.00
Feb. 22, '12	J. Vedrines	Pau ..	161.290	100.00
Feb. 29, '12	J. Vedrines	Pau ..	162.454	100.72
Mar. 1, '12	J. Vedrines	Pau ..	166.821	103.43
Mar. 2, '12	J. Vedrines	Pau ..	167.910	104.10
July 13, '12	J. Vedrines	Rheims ..	170.777	105.88
June 17, '13	M. Prevost	Rheims ..	179.820	111.49
Sep. 27, '13	M. Prevost	Rheims ..	191.897	118.98
Sep. 29, '13	M. Prevost	Rheims ..	203.850	126.39
Feb. 7, '20	Sadi Lecointe	Villacoublay ..	275.262	172.42
Feb. 28, '20	J. Casale ..	Villacoublay ..	283.464	175.75
Oct. 9, '20	de Romanet	Buc ..	292.682	181.46
Oct. 10, '20	Sadi Lecointe	Buc ..	296.694	183.95
Oct. 20, '20	"	Villacoublay ..	302.529	187.57
Nov. 4, '20	de Romanet	Buc ..	309.012	191.59
Dec. 12, '20	Sadi Lecointe	Buc ..	313.043	194.09
Sep. 26, '21	"	Villesauvage ..	330.275	204.77
Sep. 21, '22	"	Villesauvage ..	341.230	211.56
Oct. 13, '22	Brig.-Gen. Mitchell	Detroit .. U.S.A.	358.836	222.48
Feb. 15, '23	Sadi Lecointe	Istres .. Fr.	375.000	232.50
Mar. 29, '23	Lt. Maughan	Dayton (Ohio) U.S.A.	380.751	236.07
Nov. 2, '23	Lt. Brow	Mineola ..	417.590	258.91
Nov. 4, '23	Lt. Williams	Mineola ..	429.025	265.99

Fr. = France; U.S.A. = United States of America.

TABLE II.—World's Altitude Records.

Year & Date.	Holder.	Place & Country.	Altitude.	
			Metres.	Feet.
Aug. 29, '09	Latham ..	Rheims .. Fr.	155	508
Oct. 18, '09	de Lambert	Paris ..	300	984
Dec. 1, '09	Latham ..	Chalons ..	453	1,486
Jan. 7, '10	Latham ..	Chalons ..	1,000	3,280
Jan. 12, '10	L. Paulhan	Los Angeles U.S.A.	1,209	3,965
June 14, '10	Brookins ..	Indianapolis ..	1,335	4,375
July 7, '10	Latham ..	Rheims .. Fr.	1,384	4,540
July 10, '10	Brookins ..	Atlantic City U.S.A.	1,900	6,230
Aug. 11, '10	Drexel ..	Lanark .. G.B.	2,012	6,600
Sep. 3, '10	Morane ..	Deauville .. Fr.	2,582	8,475
Sep. 8, '10	Chavez ..	Issy-les-Moulineaux ..	2,587	8,490
Oct. 1, '10	Wijnmalen	Mourmelon ..	2,780	9,120
Oct. (?), '10	Drexel ..	Philadelphia U.S.A.	2,880	9,450
Oct. 31, '10	Johnston ..	Belmont Pk. ..	2,960	9,710
Dec. 8, '10	Legagneux	Pau .. Fr.	3,100	10,170
July 8, '11	Loridan ..	Chalons ..	3,177	10,420
Aug. 9, '11	Capt. Felix	Etampes ..	3,190	10,460
Sep. 4, '11	Garros ..	Saint-Malo ..	3,910	12,830
Sep. 6, '12	Garros ..	Houlegate ..	4,900	16,080
Sep. 17, '12	Legagneux	Corbailieu ..	5,120	16,800
Dec. 11, '12	Garros ..	Tunis ..	5,610	18,400
Mar. 11, '13	Perreyon ..	Buc ..	5,880	19,300
Dec. 28, '13	Legagneux	St. Raphael ..	6,120	20,250
Feb. 27, '20	Schroeder	Dayton U.S.A.	10,093	32,800
Sep. 18, '21	MacReady	Dayton ..	10,518	34,500
Sep. 5, '23	Sadi Lecointe	Villacoublay Fr.	10,741	35,250
Oct. 30, '23	"	Issy-les-Moulineaux	11,145	36,600

Fr. = France; G.B. = Great Britain; U.S.A. = United States of America.

TABLE III.—World's Distance Records.

Year & Date.	Holder.	Place & Country.	Distance.	
			kms.	miles.
Nov. 12, '06	Santos-Dumont	Bagatelle .. Fr.	0.220	721.6ft.
Oct. 26, '07	H. Farman	Issy-les-Moulineaux ..	0.770	0.488
Jan. 13, '08	H. Farman	" ..	1.000	0.621
Mar. 21, '08	H. Farman	" ..	2.004	1.243
Apr. 11, '08	Delagrang	" ..	3.925	2.438
May 30, '08	Delagrang	Centocelli .. It.	12.750	7.920
Sep. 16, '08	Delagrang	Issy-les-Moulineaux Fr.	24.125	14.98
Sep. 21, '08	Wilbur Wright	Auvours ..	66.600	41.30
Dec. 18, '08	Wilbur Wright	Auvours ..	99.800	62.00
Dec. 31, '08	Wilbur Wright	Auvours ..	124.700	77.50
Aug. 25, '09	L. Paulhan	Betheny ..	134.000	83.20
Aug. 26, '09	Latham ..	Betheny ..	154.620	96.00
Aug. 27, '09	H. Farman	Betheny ..	180.000	111.8
Nov. 4, '09	H. Farman	Mourmelon ..	234.212	145.5
July 9, '10	Labouchere	Rheims ..	340.000	213.2
July 10, '10	Olieslagers	Rheims ..	392.750	244.0
Oct. 20, '10	Tabuteau ..	Etampes ..	465.720	289.0
Dec. 21, '10	Legagneux	Pau ..	515.900	320.5
Dec. 30, '10	Tabuteau ..	Buc ..	584.745	363.0
July 16, '11	Olieslagers	Kiewit .. B.	625.000	388.0
Sep. 1, '11	Fourny ..	Buc .. Fr.	722.935	449.0
Dec. 24, '11	Gobé ..	Pau ..	740.299	460.0
Sep. 11, '12	Fourny ..	Etampes ..	1010.9	628.0
Oct. 13, '13	Seguin ..	Buc-le-Barp ..	1021.2	634.0
May 3-4, '20	Bernard & Bossoutrot	Villesauvage ..	1915.2	1190.0
Apr. 16-17, '23	Oakley Kelly & MacReady.	Dayton (Ohio) U.S.A.	4050.0	2515.0
Aug. 27-28, '23	Lts. Smith & Richter	Rockwell ..	5300.0	3290.0

B. = Belgium; Fr. = France; It. = Italy; U.S.A. = United States of America.

TABLE IV.—World's Duration Records.

Year & Date.	Holder.	Place & Country.	Duration.		
			h.	m.	s.
Nov. 12, '06	Santos-Dumont	Bagatelle .. Fr.	0	0	21.2
Oct. 26, '07	H. Farman	Issy-les-Moulineaux ..	0	0	52.6
Jan. 13, '08	H. Farman	" ..	0	1	28
Mar. 21, '08	H. Farman	" ..	0	3	39
Apr. 11, '08	Delagrang	" ..	0	6	30
May 30, '08	Delagrang	Centocelli .. It.	0	15	26.8
July 6, '08	H. Farman	Issy-les-Moulineaux Fr.	0	20	19.6
Sep. 6, '08	Delagrang	" ..	0	29	53.6
Sep. 21, '08	Wilbur Wright	Auvours ..	1	31	25.8
Dec. 18, '08	Wilbur Wright	" ..	1	54	53.4
Dec. 31, '08	Wilbur Wright	" ..	2	20	23.2
Aug. 25, '09	Paulhan ..	Betheny ..	2	43	24.8
Aug. 27, '09	H. Farman	" ..	3	04	56.4
Nov. 3, '09	H. Farman	Mourmelon ..	4	17	53.4
July 10, '10	Olieslagers	Rheims ..	5	03	5.2
Oct. 28, '10	Tabuteau ..	Etampes ..	6	00	0
Dec. 18, '10	H. Farman	Etampes ..	8	12	47.4
Sep. 1, '11	Fourny ..	Buc ..	11	01	29.2
Sep. 11, '12	Fourny ..	Etampes ..	13	17	57.2
Feb. 3, '14	Langer ..	Johannisthal G.	14	07	00
Apr. 26, '14	Poulet ..	Etampes .. Fr.	16	28	56.2
Jun. 26-27, '14	Landmann	Johannisthal G.	21	48	45
Jun. 3-4, '20	Bossoutrot & Bernard	Villesauvage Fr.	24	19	07
Dec. 29-30, '21	Stinson & Bertaud	Rooseveltd Field U.S.A.	26	18	35
Oct. 14-15, '22	Bossoutrot & Drouhin	Villesauvage Fr.	34	19	07
Apr. 16-17, '23	MacReady Kelly & Richter	Dayton (Ohio) U.S.A.	36	04	34
Aug. 27-28, '23	Lts. Smith & Richter	Rockwell Field ..	37	15	14.8

Fr. = France; G. = Germany; It. = Italy; U.S.A. = United States of America.

# PROGRESS OF THE U.S. AIR MAIL SERVICE

At the close of 1923 the U.S. Postmaster-General issued his annual report on the operation of the air mail service during the fiscal year ending June 30, 1923. We reproduce this report below, as it contains some very interesting information on the operation of an air mail service, which is not only the first regular service in the world (and, we think, about the only one) devoted entirely to the transport of mails by air, but one that is well beyond the experimental stage.

The operation of the air mail service during the period under review was confined to one transcontinental route from New York to San Francisco. Landing fields on this route are located at New York, N.Y.; Bellefonte, Pa.; Cleveland, Ohio; Bryan, Ohio; Chicago, Ill.; Iowa City, Iowa; Omaha, Nebr.; North Platte, Nebr.; Cheyenne, Wyo.; Rawlins, Wyo.; Rock Springs, Wyo.; Salt Lake City, Utah; Elko, Nev.; Reno, Nev.; and San Francisco. The total length of the route is 2,680 miles.

The appropriation for the year for the service was \$1,900,000; the expenditures were \$1,774,151.85.

During the year a total of 1,809,028 miles were flown by air mail planes carrying an estimated total of 67,875,840 pieces of first-class mail. A performance percentage of 96.72 was made for the year's operation.

Certain valuable additions to the ground preparation of the route were made, notably a warehouse, repair base and hangars being erected at Chicago, Ill. Practically all the work that is necessary in the preparation of a lighted airway between Chicago and Cheyenne has been done, and successful tests have been made. A service over this route under these conditions will be the first attempt made in the world to operate aircraft at night on a regular schedule.

On June 30, 1923, the air mail service had 79 aeroplanes in flying condition.

The air mail service inventory, as of July 1, 1923—when 15 fields and 14 radio stations were equipped—is as follows:—

	\$	\$
Buildings—		
Repair depot and warehouse (1)	200,000	
Hangars (9)	103,640	
Shops (5)	6,300	
Offices (9)	10,414	
		320,354
Field improvements (cinder runways, tile drains, macadam roads, etc.)	100,000	
Office equipment (furniture, typewriters, file cases, etc.)	6,150	
Field equipment (machinery, tools, etc.)	79,783	
Airplanes (79)	592,500	
Aeroplane motors (545)	1,090,000	
Motor vehicles (95)	38,649	
Supplies and materials in stock rooms	310,990	
Gasoline on hand, July 1 (33,187 gals.)	8,296	
Oil on hand, July 1 (6,829 gals.)	4,097	
Mileage scrip on hand	5,917	
Night flying equipment (lamps, generators, etc.)	232,976	
Radio—		
Office buildings (10)	10,700	
Office equipment	1,840	
Radio equipment (14)	59,240	
		71,780
		\$2,861,492

Consolidated statements showing the performance and total expenditure for operation and maintenance of the air mail service for the fiscal year ended June 30, 1923, are shown in Tables I and II.

TABLE I.—Performance of the Air Mail Service for Fiscal Year ended June 30, 1923

Month.	Trips possible (scheduled).	Trips de-faulted.	Trips attempt-ed.	Trips uncom-pleted.	Weather encountered. Trips in fog, etc.	Trips clear.	Mileage possible (scheduled).	Miles travelled with mail.	Miles ferry and test.	Total miles travelled.	Per cent. of performance.	Mail carried (number of letters).	Cost of service.	Forced Land-ings due to— Mechan-ical causes. Other causes.
1922.														
July	675	0	675	2	203	472	134,000	133,809	8,620	142,429	99.86	4,793,840	88,427.65	11 6
August	729	0	729	0	205	524	145,896	145,896	14,485	160,381	100.00	5,401,440	121,270.00	8 6
September	688	2	686	1	187	499	136,562	135,997	10,334	146,331	99.59	6,160,160	126,075.56	15 13
October	706	3	703	9	255	448	139,977	138,307	38,606	176,913	98.80	6,125,800	341,770.51	22 15
November	677	24	653	18	349	304	134,182	127,805	17,029	144,834	95.24	5,593,120	98,686.71	20 37
December	674	45	629	21	394	235	133,760	123,070	25,167	148,237	92.01	5,189,840	103,649.95	10 37
1923.														
January	702	40	662	20	382	280	139,360	129,289	12,665	141,954	92.77	5,695,960	146,067.44	14 36
February	621	38	583	13	292	291	123,280	114,424	14,749	129,173	92.81	4,921,920	100,319.45	22 34
March	729	24	705	22	356	349	144,720	137,200	16,768	153,968	94.80	6,537,720	147,965.95	12 38
April	675	23	652	9	323	329	134,000	128,483	11,290	139,773	95.88	6,118,120	235,219.01	12 24
May	702	4	698	3	312	386	139,360	138,085	16,759	154,844	99.08	5,599,200	173,723.59	13 19
June	702	2	700	4	312	388	139,360	138,272	31,919	170,191	99.21	5,738,720	213,975.76	17 14
Total	8,280	205	8,075	122	3,570	4,505	1,644,457	1,590,637	218,391	1,809,028	96.72	67,875,840	1,897,151.58	176 279

TABLE II.—Total Expenditure for Operation and Maintenance of the Air Mail Service for the Fiscal Year ended June 30, 1923

TABLE 11.—Total Expenditure for Operation and Maintenance of the Air Mail Service for the Fiscal Year 1923.									
Month.	Wages and salaries of all employes.	Pilots' mileage pay.	Cost of gasoline and oil purchased.	Repair parts and material purchased.	Tools, machinery, and equipment purchased.	Rent, light, fuel, power and water.	Building and field improvements.	Telephone and telegraph.	
1922.	\$	\$	\$	\$	\$	\$	\$	\$	
July	52,445.50	7,825.63	17,397.28	4,221.45	338.45	1,154.58	300.46	353.95	
August	53,844.04	8,683.45	17,881.48	13,146.67	1,416.47	2,094.68	18,171.30	379.15	
September	55,146.01	7,989.26	17,316.90	8,315.94	1,111.16	2,709.27	27,065.57	365.76	
October	56,125.83	9,683.65	18,808.79	18,055.13	1,113.31	2,433.26	226,661.29	519.91	
November	56,630.80	8,067.49	14,147.79	5,064.34	2,034.13	2,844.12	3,639.14	461.55	
December	57,185.18	8,169.67	13,271.42	6,789.51	2,390.29	3,378.99	4,689.56	359.41	
1923.									
January	55,813.01	7,876.87	14,018.37	15,415.53	34,052.52	2,854.40	6,278.27	540.94	
February	53,742.98	7,279.16	12,136.40	3,635.51	10,096.11	4,245.81	1,605.21	380.42	
March	54,823.80	8,746.80	18,136.74	3,223.33	11,359.88	6,085.99	36,550.95	521.80	
April	57,420.27	7,950.58	12,923.76	21,674.93	107,028.64	2,626.35	14,454.98	550.87	
May	60,145.36	9,075.65	15,652.93	4,110.43	10,010.42	2,941.37	65,318.91	868.21	
June	63,623.12	9,979.48	14,669.05	10,851.21	29,777.58	3,314.09	69,060.48	1,154.00	
Totals	676,945.90	101,327.69	186,360.91	114,503.98	210,728.96	36,682.91	473,796.12	6,455.97	
Month.	Expenses in connection with forced landings.	Freight and express.	Mileage scrip used.	Expense accounts.	Miscellaneous.	Total expenditures.	Gallons of gas issued to planes.	Total flying time.	Total miles flown.
1922.	\$	\$	\$	\$	\$	\$		Hrs. Mins.	
July	83.33	849.72	942.79	1,691.10	823.41	88,427.65	41,956	1,515 39	142,429
August	116.47	529.69	914.46	2,002.16	2,089.98	121,270.00	43,542	1,706 27	160,381
September	154.20	1,252.98	1,001.91	2,541.90	1,104.70	126,075.56	40,430	1,550 34	146,331
October	147.15	2,338.37	1,536.33	3,411.09	936.40	341,770.51	47,574	1,893 09	176,913
November	277.98	1,199.67	1,074.90	2,225.35	1,019.45	98,686.71	39,819	1,534 42	144,834
December	717.19	849.72	1,724.74	2,238.44	1,885.83	103,649.95	40,634	1,524 03	148,237
1923.									
January	403.90	3,007.09	2,253.34	2,405.29	1,147.91	146,067.44	39,273	1,485 29	141,954
February	342.92	2,760.27	1,618.58	2,113.65	362.43	100,319.45	36,631	1,318 06	129,173
March	311.48	3,269.57	1,846.46	2,800.70	288.45	147,965.95	42,522	1,587 09	153,968
April	163.14	3,862.94	1,154.12	2,944.36	2,464.07	235,219.01	39,400	1,361 36	139,773
May	308.83	1,308.07	1,010.79	2,228.95	743.67	173,723.59	42,894	1,629 39	154,844
June	1,518.30	5,389.30	1,719.49	2,588.34	331.32	213,975.76	47,102	1,801 00	170,191
Totals	4,544.89	26,617.39	16,797.91	29,191.33	13,197.62	1,897,151.58	501,777	18,907 33	1,809,028

Note.—Cost per mile entire service \$1.048



Speaking of the future of the air mail service, the report says:—

"Before the air mail service can offer to the department its full measure of value it will be necessary to operate the 'planes at night as well as in the daytime. Its value as a postal transportation agent lies in its high speed, but to compete with the railroad train it must exceed the overnight distance limit of the train. Night flying, if successful, will accomplish this.

"Accordingly the air mail service undertook an intensive study of night operation in all its phases. It was found that there had been no regular operation of aircraft at night excepting that which took place during the War. However, the department availed itself of all obtainable information and competent advice, and received the co-operation of manufacturers, of the Army Air Service laboratories, and the National Advisory Committee of Aeronautics.

"After several months of research work a plan was reached for lighting the course between Chicago, Ill., and Cheyenne, Wyo., for the location of emergency fields and the lighting of these and the regularly established landing fields and buildings. All this involved special devices and expert handling for lighting to approximate day lighting and daytime perspective.

"Ten of our regular mail-carrying 'planes were equipped with appropriate lighting devices, and the official test was made for four days beginning August 21, and maintained between New York, N.Y., and San Francisco, Calif.

"The service was operated in both directions, and proved an entire success, with schedules 26 hrs. 14 mins. eastbound, and 29 hrs. 38 mins. westbound (best time).

"The experiment demonstrated that it is feasible and practicable to operate aircraft at night over properly lighted and prepared airways, and with a speed practically equal to that maintained during daylight."

## NOTICES TO AIRMEN

### Periodical Internal Inspection of Fabric-Covered Components

1. ATTENTION is directed to the necessity for a periodical inspection of the internal details of fabric-covered components, particularly in the case of components incorporating spars of laminated construction.

2. The inspection of aircraft by representatives of the Secretary of State for the purpose of renewal of the Certificate of Airworthiness, which normally takes place at yearly intervals, will accordingly in future include inspection of the

internal details of fabric-covered components, and the certificate will not be renewed without such internal inspection. Under existing methods of construction of such components, this will necessarily involve the opening up of the fabric to a considerable extent, and in some cases the complete stripping of the component may be required.

(No. 5 of 1924.)

### NOTICE TO GROUND ENGINEERS

No. 3 of 1924 is issued. This is identical with No. 5 of 1924, Notice to Airmen, published above.

## "HELICOPTERACIONE"

DURING the past month M. Pescara, who has been continuing his experiments with his helicopter at Issy-les-Moulineaux, succeeded in making several flights, incidentally creating a helicopter record. On January 16 he improved on his previous record (of 5 mins. 44 secs.) by remaining in the air for 8 mins. 13 secs. On this occasion he succeeded in flying round the whole area of the ground, executing figures of eight, circles, etc. On the following morning he flew in a straight line for a distance of 500 m., but, owing to a slight failure in one of his gears, he had to discontinue his trials for the time being.

M. Pescara resumed his trials on January 29, when he accomplished what is probably the best flight yet made on a direct-lift machine. He was, on this occasion, making an attempt for the French Aero Club prize for the first helicopter flight of 1 km. in a closed circuit. During his first two attempts M. Pescara made flights of nearly 8 mins. and 3½ mins. under very unfavourable weather conditions. At his third attempt

he rose vertically to a height of about 4 ft., and then proceeded horizontally for a distance of half a kilometre, and, rounding a pylon at this point, he flew back again, descending on the spot at which he had started. This flight lasted 10 mins. 33 secs., and constitutes a world's record, but unfortunately, owing to a slight mishap which occurred just before he landed, when a sudden gust of wind caused the tail-skid to touch the ground for an instant, M. Pescara failed to win the prize.

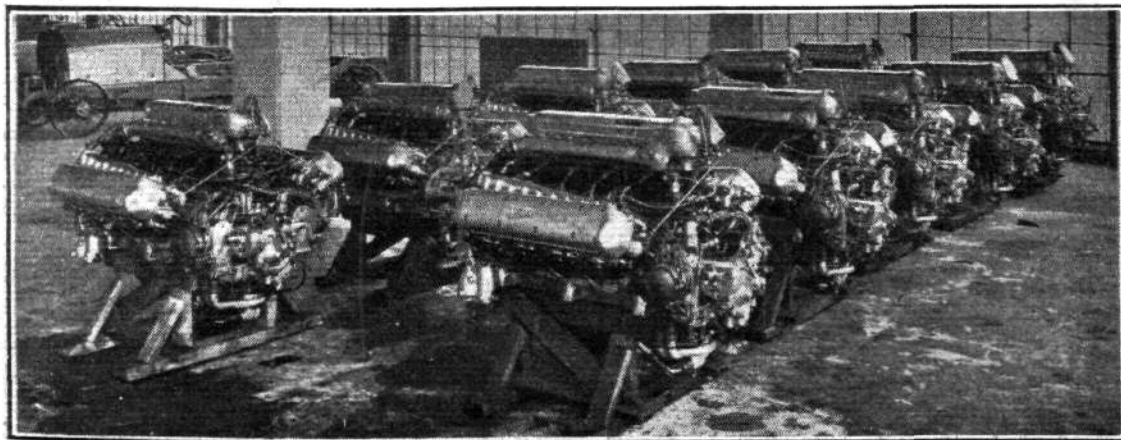
The Pescara helicopter consists of a more or less conventional type fuselage, containing the pilot and 180 h.p. Hispano engine, extending vertically up from the centre of which is a shaft carrying two sets of four-bladed horizontal airscrews mounted one above the other. Each set of airscrews is made up of biplane-type blades—miniature biplane wings, in fact—with wing-warping method of control. These airscrews are rotated, in opposite directions, by the engine through suitable gearing.

### Taming Mesopotamia Tribes

FOLLOWING defiance of the Mesopotamia Government by certain tribes for some time, a report is to hand from Baghdad as to the very effective remedies employed to bring home to the sheiks and their henchmen concerned the error of their ways. After an ample time limit had been given to the recalcitrant tribes, without any sign of repentance, the Air Officer Commanding was requested, through the High Commissioner, to take action against them. In this action the

Royal Air Force, the Iraq army, Iraq levies, and Iraq police participated.

Aircraft and the necessary small ground detachments were moved to convenient advanced positions, the aerodromes being protected by sections of armoured cars and also by detachments of Iraq army and Iraq levies. Aerial action was continued without intermission for 24 hours, when all the sheiks of the two tribes concerned surrendered. How long would this have taken using the old methods?



A Week's Output of "Lions": Here is seen a "litter" of the famous 450 h.p. Napier "Lion" aero engine, all ready for their final strenuous test before delivery. Napier engines are in use in all parts of the world—America, France, Spain, Japan, Canada, Holland, Argentine, Czecho-Slovakia, etc.—hence the works at Acton are naturally busy.

# SOME ASPECTS OF AVIATION\*

By THE DUKE OF SUTHERLAND

THE Duke of Sutherland, in his opening remarks, indicated that he proposed to speak only generally on interesting aviation matters, including the development of light aeroplanes in this country and the progress of aviation in the U.S.A.

He believed light aeroplanes were going to prove themselves a wonderful new factor in aviation, both for the encouragement of popular civil flying amongst the youth of the nation and for the training of military pilots in the first stages of instruction. By the establishment of light aeroplane clubs all over the country, a movement which he believed the Air Ministry was anxious to support, and by the holding of annual competitions for prizes, the light aeroplane movement must continue its advance, until it began to play a real part in national aviation, both civil and military. The way in which these clubs should be formed would probably be suggested by the Air Ministry at an early date, when they would also indicate what help they were able to give.

The most important thing for the advance of light aeroplanes was the evolution of a really good engine, sufficiently light and reliable to fill all the necessary qualifications, and specially designed for aircraft work. No engine of this type existed at present, although the Bristol "Cherub" came nearer that conception than any he knew. He believed the Blackburne engine makers were experimenting with a new type of higher power for this year's trials. For all-round use, he confessed, he liked the appearance and general design of the De Havilland the best, though several machines, especially the Parnal "Pixie," came very near to it in excellence of design. His Grace then touched upon the recent trials, and referred to this year's trials in the summer.

He thought a great future lay before these cheap little machines. Aviation for the general public might not come in one year or two, but come it must one day not too far ahead, and it rested with all of them, as well as with our Government, to make that process of development short or long.

America had not yet commenced the development of light aeroplanes. The reason they gave for this was that they had such a huge stock of surplus war stores, both of engines and machines, that people could pick them up for practically nothing—and until this stock was exhausted there would be no likelihood of a public demand for a cheap light aeroplane. Also it must be remembered that in the United States the flying distances to be covered were so much greater in that extensive country than they were with us, that high speed was essential.

It must also be remembered that only military and naval aviation existed in the United States, and that civil aviation on commercial lines, as we knew it, was practically non-existent for the following reasons. They had no federal air law to enforce certificates of air worthiness either for pilots or machines, and the itinerant uncertified pilots, or gypsies as they were called, had brought civil aviation into disrepute owing to the number of accidents they had had with their neglected machines.

The Winslow Bill, which sets up a Bureau of Aeronautics under the Department of Commerce, for the proper control of civil aviation, was expected to come before Congress and become law at no distant date. This embodied most of the requirements for aeroplanes which exist in our country.

In one branch of civil flying, however, America excelled all other countries, and that was in the wonderful development of her air mail service across the States. At the present moment they had only a daylight service in existence, but they were planning now to have a day and night continuous service that would bring San Francisco within 30 hours of New York for letter services. The service was run by the Post Office. The machines used were re-modelled De Havillands, with Liberty engines from surplus war stores. There were 70 machines used in the service at present.

The following preparations were being carried out in order to develop a night-flying part of the air mail route. The plan was to fly between New York and Chicago in daylight, between Chicago and Cheyenne at night, and between Cheyenne and San Francisco in daylight, thus affording a 30 hours' service between the Pacific and Atlantic coast. This journey took nearly a week in the fastest train, and three ranges of mountains had to be crossed. Flying at night was very much

the same as trying to motor somewhere without headlights and no road map.

So many things were being done to make the night flying routes successful, that towards the end of 1922 Europe was sending over observers to learn just how the air mail planned to equal at night the efficiency it had shown by day. Along the experimental night route between Chicago and Cheyenne emergency landing fields were being located 25 miles apart. They were placed near the rail-road and towns whenever possible, with the provision that they should be kept always in readiness to receive an air mail 'plane day or night.

The location of these fields or aerodromes was determined by prevailing winds and conditions of the surrounding country. At each of these fields, like those at the main stations, aerial beacons, or lighthouses of the sky, were being set up or planned. The lighthouses were perfected by several organisations: one, the electric light, with 5,000,000 candle-power, with electricity generated by means of the motor which was used to run the truck on which it was installed, was developed by the Sperry Gyroscope Company of Brooklyn, New York. Another kind was the A.G.A. beacon, developed by the American Gas Accumulator Company of Elizabeth, N.J., and fed by acetylene gas, controlled and made automatic by a method explained later on. Both beacons had a range of 40 miles or so.

Further particulars of the various systems of lighting the 'dromes were given by the lecturer, and the methods of keeping night-flying pilots on their proper route, as also explanations of the working of the aerial beacons, the automatic A.G.A. being similar to the one in use at Croydon aerodrome.†

The actual system of navigating by means of the three-mile lights, the long-range aerial lighthouses, and the field beacons naturally would not be complete in detail until the various pieces of apparatus had been thoroughly tested by the pilots, under working conditions. For example, one of the A.G.A. appliances was a ground wind indicator, intended to act as a signal to aviators day and night, and because it was operated by means of the sun valve could be used on fields where no personnel was available. It was built in the form of a T, and approximated the standard form internationally agreed upon as an indicator for landing areas. The three parts of the T, or vanes, as they are known, were mounted in such a manner as to receive upon their upper surfaces light projected through the dioptric lenses fitted round the beacon head. The vanes and lenses rotated about a vertical axis, thereby swinging with the wind like a weather vane. The long leg of the T was virtually the wind indicator. At night the light could be seen by a pilot 12 miles away.

Another series of demonstrations were being made on the air mail experimental field with the lighting apparatus of Barbier, Benard et Turenne, a French company, whose lights included a night-landing illuminating apparatus, a 35-mile acetylene beacon, and flood and route signal equipment.

The system of wireless service during the past year had enabled the pilots to secure a fair idea of what to expect when setting out, and they were better able, therefore, to map out the route, determine the altitude at which they should fly, and whether or not to settle down on the nearest field or proceed to the next.

The pilots have become so efficient by extensive training and experience that the 'planes were serviced as regularly and as expertly as a motor-car in a garage, or more so. Before the 'planes commenced operating on schedule it required nearly 100 hours to deliver a letter from one side of the country to the other. At the end of the year all delivery schedule had been cut along the entire route. In many instances a letter was delivered between distant cities 20 hours earlier than if it made its journey all the way by train. While the service had saved many hours in delivery, officials believe they can cut the coast to coast schedules from 80 to less than 30 hours by means of the night-flying service.

It was quite possible that in the future a commercial company might take over air mails and run them for the Post Office, but at the present moment it was run entirely by the Post Office at ordinary letter rates.

America was undoubtedly ahead of us in regard to high speed. He saw some light racing machines at the Curtiss works that could fly at any speed from 250 to 270 miles an

\* Paper read on January 30 to the Cambridge University Aeronautical Society.

† [NOTE.—A description of the U.S. Night Air Mail experiments appeared in FLIGHT for October 11, 1923.—ED.]



hour, and had some discussion with their best racing pilots on the subject.

He also went over the Wright engine and aeroplane works at Paterson, near New York, which were of great interest. He considered the Curtiss and Wright engines to be both the very last word in aeroplane engines at the present time. The Packard engines were also good, but they were of rather heavier type, and were used amongst other things for the giant airship the "Shenandoah."

Their naval and military first line machines struck him as being particularly efficient, and he saw good formation flying over the aerodromes that he visited. At Washington he had the opportunity of going up in one of their large flying boats, and flew up the Potomac River as far as Mount Vernon, the home of George Washington, and back.

The Duke next dealt briefly with the airship development in the U.S., and said he spent an interesting day at Lakehurst, New Jersey, visiting "Z.R.1." She was not at her mooring mast at the time, but in her shed, and he went all over her from end to end. He also went up in the lift to the top of the mooring mast (160 ft. high). Everything seemed to work like clockwork, and he could not help admiring the way in which the mooring mast had been built. Its base formed an equilateral triangle of structural steel, 60 ft. on each side, and it tapered to a platform at the top. On the ground level were motor winches, motor pumps and elevator machinery. Motors worked the elevator and operated the pumps and winches which hauled the airship to the mast and held it in place by means of great cables. Fuel, water and gas were then taken aboard the ship from the platform above, as were the passengers, who entered the ship by a covered gangway. Eventually all principal cities in America would have similar masts for airship anchorage, just as ships had piers. Since he visited this airship she had broken away from this mooring mast in a great gale, but returned safely to her base against the wind under her own power, with only one officer and half her crew to run the ship. This was a performance of which they might well be proud, and a sufficient answer to those who said that airships could never be made safe.

The Duke then gave a few particulars of "Z.R.1," but as a description of this ship appeared in *FLIGHT* for November 29 last, we need not dwell further on the subject here.

He then briefly referred to the "Shenandoah's" polar trip this summer, which will probably be extended to England. According to that interesting book "The Northward Course of Empire," by Mr. Stefanson, the well-known Canadian Arctic explorer, the summer in the polar regions is quite hot and fine, with perpetual sunshine, and, contrary to general belief, quite suitable for airship work. No storms should be encountered there at that season at all comparable in violence to the one that wrenched her so violently from her mooring mast the other day at Lakehurst.

Far the shortest air route from London to Tokio was over the North Polar regions, and for that purpose an airship base in the Arctic regions might be essential. The American plan, therefore, of exploring the Arctic might not be so purposeless as some seemed to think.

Referring to the use of helium in this airship, His Grace remarked that several methods for extracting helium had been tried, but none of them had succeeded in producing it economically—that is, less than 10 cents per cubic foot. Government experts believed they would shortly reduce the cost to about 3 cents per cubic foot. At present it had all to be transported a great distance in metal cylinders from Texas, where the gas was found and purified, to Lakehurst, New Jersey, the home of the airship. The matter of saving the gas once it was put into the airship was not the least important of many new experiments that were being tried out by the American engineers.

Engine tests were also taking place to devise means of conserving fuel, and thereby reducing the fuel load of an airship and enabling it to carry out greater payloads.

The Navy "C.7" and the Army "A.C.1," both non-rigids, were also flown with helium in 1922. The United States helium production plant began operating on March 28, 1921, and continued to November 30, when, owing to insufficient funds, it was placed on an inoperative basis. Operations were resumed on October 21, 1922, and had been continued to date. The plant up to January 1, 1923, had produced 3,250,000 cubic ft. of helium. It was estimated that on that date there was in storage approximately 2,500,000 cubic ft. of pure helium and approximately 500,000 cubic ft. of impure helium, about 60 per cent. of which would be recovered and used. It was stated by no less an authority than Prof. McLennan of Toronto University, that 10,000,000 cubic ft. of helium were bubbling to waste annually in Canada. If this were so, it was high time we took steps to conserve this vitally important

and valuable gas. Even if it were found to be too expensive to produce for commercial airship purposes, it undoubtedly should be of great value for military purposes.

Another matter connected with American aviation to which His Grace made special reference was aerial photography as practised by the Fairchild Aerial Camera Corporation. Aerial photography was divided into three classes—oblique or perspective; mosaic or survey, made up of vertical views; and the small scale plan map. Each class served a distinct public need. Of the corporations engaged exclusively in aerial photography, the Fairchild companies had been the most active. During 1922 their machines flew about 200 hours, operations being conducted in many parts of the country. Fairchild had developed many new uses for the aerial photograph, and the Duke quoted the following examples: A company was formed for the organisation of a new golf club, and to obtain the right kind of charter members complete visualisation was necessary. Oblique views from the air provided the answer. In another instance an engineering company, supervising a contract for clients 3,000 miles distant, were able, by means of oblique photographs, to illustrate the progress on a vast jetty development. In yet another instance, where property rights were involved, the claimant was able to show to the Court and Jury the effect of the sea on his land, and thereby establish the injury suffered because of inadequate shore protection by the Government. Many instances had arisen of industrial plants reproducing aerial photographs as a part of institutional advertising—illustrating the character and stability of the organisation.

One of the first municipalities to adopt the aerial photographic map as a part of the fundamental city plan equipment was Kansas City, Mo., covering an area of more than 60 square miles, with difference in elevation amounting to 600 ft. Fairchild constructed a map consisting of 760 different photographs in ninety days from the time the contract was awarded. The scale of the map was 600 ft. to 1 in. This map had been carefully gone over by members of the commission and other officials, and was regarded as invaluable.

A significant development in this branch of aviation had been the adoption of the photographic map by such power companies as the Public Service Electric Company of New Jersey and the Alabama Power Company of Birmingham, Ala. The especial application of the air map had been to the laying out and purchasing of rights of ways, which had long been a difficult and expensive problem, entailing destruction of surface property and sometimes such speculation in ground values as to imperil the whole project. When the Public Service Company first considered air photography they asked: How can we find the actual property line? This question was answered by Fairchild engineers, who, by studying the actual public records, superimposed on the air map in bright inks the outlines of each land parcel, together with a key to the ownership.

The large timber companies of Canada have long been seeking a speedier and more economical method of cruising timber. Experiments carried on by the Laurentide Company, Ltd., led to great extension, and in 1922 the Fairchild Aerial Surveys, Ltd., of Canada was formed to take over the photographic work. More than 3,000 square miles had been surveyed from the air and timber estimates furnished in one-third the time the same information could have been secured on the ground, at approximately two-thirds the cost, and with an accuracy far greater than that obtainable from surface surveys.

As new problems arose and new opportunities for the application of aerial photography were discerned, there was need for better equipment. Both Fairchild and Eastman during the year brought out many improvements in cameras, films and accessories, and these in turn had greatly stimulated commercial application of the art.

The use of air patrols for sighting and stamping out forest fires both in U.S.A. and in Canada had also become quite general, and much valuable timber had been saved by this method.

In conclusion, the Duke said that wherever he went in America he was met with unexampled courtesy and kindness, and was shown practically everything there was to see in regard to aviation. He was made to feel as a member of the British Government that the relations between America and ourselves had never been better than they were at that moment. There was no Air Ministry in America, but he had opportunities for talks on aviation and other matters with the President, Mr. Coolidge; the Secretary of State for the Navy, Mr. Denby; and the Secretary of State for Foreign Affairs, Mr. Hughes; and with the heads of both the Naval and Military Air Service, and on all sides he found the same desire to show him, as the representative of the British Air Ministry, every attention and kindness.

## MOSCOW-KÖNIGSBERG AIR LINE

WE have received some interesting notes on the results achieved during 1923 by the German-Russian Air Traffic Company on the Moscow-Königsberg air line, which has been run by them since May, 1922. This line, which connects up with Berlin by rail from Königsberg, is 1,200 km. long, the route passing through Kovno and Smolensk. During 1922 machines landed at both towns *en route*, but in 1923, owing to trouble with the Lithuanian and Latvian authorities, no landings were made at Kovno, and the 820 kms. between Smolensk and Königsberg were made in one flight. In the future it is proposed to establish an intermediate aerodrome on Russian territory, either at Polotzk or Drissa.

The "flying stock" of this company consists of a fleet of 10 Fokker "F.III" monoplanes, fitted with 360 h.p. Rolls-Royce engines. The latter, it may be of interest to note, were supplied by the Aircraft Disposal Company, Ltd., of Regent House, Kingsway, London. Each journey between Moscow-Königsberg is accomplished without change of machine or crew.

Compared with the first year's service, extending over the period May 1 to November 1, 1922, last year's results, during the similar period, showed an improvement all round. Three journeys per week were made in each direction last year, as compared with two in 1922. The total distance flown was 192,680 kms. (152,980 kms. in 1922). The following figures give the comparison of work done over the period May 1-November 1 for 1922 and 1923:—

	May 1 to November 1, 1922.	1923.
Number of trips made ..	113	155
Percentage of trips completed..	96.5 per cent.	99 per cent.

	May 1 to November 1, 1922.	1923.
Number of passengers ..	286	352
Goods (kgs.) ..	18,298	22,468
Mail (kgs.) ..	1,047	1,684
Total load (kgs.) ..	2,225	50,550

Of the 99 per cent. of the trips completed, 8 per cent. were delayed on account of weather conditions, illness of passenger, engine trouble, etc. Only on one occasion has a machine been damaged, and there has been no accident recorded during the two years' operations of the line.

During 1923 engine trouble only occurred twice—once through the breaking of an oil tube, and another time through the breaking of a cooling water tube, both of which were probably caused by vibration. Thus, engine trouble was experienced only once on approximately 10,000 kms.—and this in spite of the fact that the engines are run under quite extraordinary conditions, *i.e.* 820 kms. non-stop and another 380 kms. after only a short stay on the ground. In other words, the Rolls-Royce "Eagle VIII's" have, as usual, been demonstrating the reliability of British aircraft engines.

It is of interest to note that the average speed over this route has been increased during 1923 in comparison with 1922 by 2.5 per cent.—that is to say, from 137 kms. (85 miles) per hour to 141 kms. (87 miles) per hour. The best performance reported for 1923 consisted of a flight from Königsberg to Moscow (1,200 kms., or 744 miles) in 5 hrs. 25 mins., without intermediate landing and with five passengers, mail and luggage (in all a net load of 405 kgs.). This works out at an average speed of 221 kms. (137 miles) per hour.

## CORRESPONDENCE

*The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.*

### CHINESE AIR POSTS

[2086] Letter No. 2084, from Tientsin, in your issue of 17th ult., whilst throwing a graphic light on things in China today, may unintentionally throw doubt on the statements of your Air Post Correspondent, so that the following letter to me from the Chinese Ministry of Communications, Directorate-General of Posts, Co-Director-General's Office, Peking, No. 2659, under date of October 17, 1923, may be of interest to your readers:—

"I am directed to acknowledge receipt of your letter of 30th August, and, in reply, to state:—

"1. Special statistics of Air Mail matter, in the flights of 7th May, 1920 (between Tientsin and Peking) and during July, 1921 (between Peking and Tsinan) are not available.

"2. Occasional flights take place between Peking and Tientsin, when opportunity is taken to send mails by the aeroplanes.

"3. There is no information available as to the number of stamps printed.

"(Signed) E. Rousse, Chief Secretary."

Things may be as bad in China as your correspondent states, but I did get a reply to my letter to Peking, but I have not got, as yet, a reply to a letter sent about the same time to the G.P.O., London. I live in the hope that some of these days I shall get a little slip of paper saying that the matter is having attention.

W. E. HUGHES

Hornsey, N. 8.

### Sir Samuel Hoare's Farewell Message

In a farewell message to his old colleagues, Sir Samuel Hoare, formerly Secretary of State for Air in the late Government, states: "Bidding farewell to the Air Ministry and the Royal Air Force, and on relinquishing the office of Secretary of State for Air, I desire to express my thanks to all with whose work I have been brought into contact, and for the ready assistance which they have at all times afforded me. I have been much struck during my term of office with the zeal and *esprit de corps* which animate all ranks of the Royal Air Force and with the very high standard of discipline and efficiency which has been attained by this, the youngest of the fighting Services. The Royal Air Force has a brilliant future before it, and is destined to play a role of steadily increasing importance in Imperial defence. Civil aviation, too, is, I am confident, on the threshold of far-reaching developments. I am proud to have been associated with the Air Ministry during a year marked by such progress as has been made, thanks to the unremitting efforts of all concerned in 1923."

### The "Dixmude" Inquiry

THE commission of inquiry appointed to investigate the loss of the French (ex-German) airship "Dixmude," and presided over by Capt. Laborde, has submitted its report, but the French Minister of Marine has decided to appoint a further commission, with the object of finding whether there are not responsibilities higher than those on which the other commission was competent to report. The new "High Commission of Inquiry" will be presided over by Marshal Fayolle (Inspector-General of Military Aviation), and will

include Vice-Admirals Le Bris, Fournier and Touchard. The first commission agreed unanimously that the airship was struck by lightning; that the meteorological service at the Cuers base was perfect; that the condition of the airship was unsatisfactory. They reported at length on the various defects of the airship, but stated that, though these faults called for restrictions on the use of the vessel for long flights, they were not to be considered the immediate cause of the disaster. The report concluded by stating that "the principal cause of the loss of the 'Dixmude' was its use during bad weather, when material facilities of landing-ground and shelters, with the exception of the Cuers base, were practically non-existent; and when it was not possible to obtain meteorological information for the return trip."

### A British Entry for the Beaumont Cup

WE are glad to learn that the Royal Aero Club has lodged with the Aero Club of France an entry for the Beaumont Cup international air race, on behalf of the Gloucestershire Aircraft Company of Cheltenham. We understand Mr. Folland is at work on a new racer, which will be fitted with a special Napier "Lion," and, probably, wing radiators.

### Aeroplane Performance Estimates

WE would remind our readers that it is tomorrow, February 8, that Mr. Roy Chadwick will read, before the Institution of Aeronautical Engineers, his paper on "Aeroplane Performance Estimates." The meeting will be held at the Engineers' Club, Coventry Street, and will begin at 6.30 p.m. Tickets may be obtained from the office of the Institution of Aeronautical Engineers, 60, Chancery Lane, London, W.C. 2



# THE ROYAL AIR FORCE

London Gazette, January 29, 1924

## General Duties Branch

V. Harris is granted a permanent commn. as a Pilot Offr., with effect from (Jan. 14), and with seny. of July 14, 1922. The following are granted short service commns. in ranks stated, with effect from, and with seny. of, Jan. 14:—  
*Flying Offrs. (for Seven Years on the Active List).—*L. S. Hamilton (Capt., Indian Army, retd.); A. B. Smith, M.C. (Capt. Indian Army, retd.).

*Pilot Offrs. on Probation (for Five Years on Active List).—*L. W. C. Annable, E. C. Boucher R. W. E. Bryant, S. E. Bulloch, J. E. Clayton, R. K. Coupland, P. Cranswick, M.C., H. T. R. Cripps, E. H. Fielden, T. H. Finney, L. R. Gladwin-Errington, G. D. Green, P. P. Grey, G. S. Hall, A. F. Hutton, G. W. P. Irwin, G. H. Jennings-Bramly, A. J. McKellar, J. C. Marry, D. W. J. Meagher, F. W. Moxham, J. F. Nicholas, P. E. Nicholl, E. H. L. Pellew, D. Robinson, G. W. R. Russell, A. E. P. Smith, V. W. Soltan, C. F. Steventon, J. Summers, W. A. Tattersall, G. D. Venables, F. F. Wilkinson, and J. F. Young.

Flight Lieut. F. G. C. Weare, M.C., resigns his permanent commn., and is permitted to retain his rank; Jan. 20. Flight Lieut. M. H. Coote is placed on half pay, Scale B; Jan. 1.

## Stores Branch.

Flight Lieut. A. R. Thomas is restored to full pay from half-pay; Nov. 21, 1923 (substituted for Gazette, Nov. 30, 1923).

## Medical Branch

Flight Lieut. C. T. O'Neill, O.B.E., M.B., is granted the acting rank of Squadron Leader from Oct. 21, 1922, to Sept. 26, 1923, inclusive.

## Reserve of Air Force Officers

The following are granted commns. in Class A, General Duties Branch, as Pilot Offrs. on probation (Jan. 29):—J. A. A. Barber, E. C. Brown.

Flying Offr. L. Rimmer, M.M., is confirmed in rank; Jan. 12. Observer Offr. H. Wisnekwitz, M.C., is transferred from Class B to Class C; Aug. 20, 1923. Flying Offr. R. V. Nalder relinquishes his commn. on account of ill-health, and is permitted to retain his rank; Jan. 30.

## Memorandum.

The temp. commn. of Pilot Offr. C. G. Osborne is terminated on cessation of duty; Oct. 20, 1923.

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the R.A.F. are notified:—  
*General Duties Branch*

*Air Commodores:* T. I. Webb-Bowen, C.B., C.M.G., to Inland Area to command. 10.3.24. L. E. O. Charlton, C.B., C.M.G., D.S.O., to No. 3 Group, Spittlegate, to command. 7.3.24. C. L. Launce, C.B., C.M.G., D.S.O., to R.A.F., Halton, to command. 28.2.24. F. C. Halahan, C.M.G., C.B.E., D.S.O., M.V.O., to Air Ministry (Dept. of Air Member for Supply and Research). 1.4.24. C. R. Samson, C.M.G., D.S.O., A.F.C., to No. 1 Group, Kenley, to command. 26.2.24. E. L. Gerrard, C.M.G., D.S.O., to Palestine Command, to command. 1.4.24.

*Squadron Leaders:* S. R. Watkins, A.F.C., to H.Q., Coastal Area. 1.2.24. H. I. Hammer, D.F.C., to No. 1 Sch. of Tech. Training (Boys), Halton. 11.2.24. A. W. C. V. Parr, to Supt. of Reserves, Northolt. 11.2.24. L. H. Slatter, O.B.E., D.S.C., D.F.C., to R.A.F. Base, Malta. 26.1.24. H. V. C. de Crespigny, M.C., D.F.C., to Sch. of Tech. Training (Men), Manston. 17.2.24. C. R. Cox, A.F.C., to Air Ministry. 11.2.24. C. W. Nutting, O.B.E., D.S.C., to R.A.F. Depot, on transfer to Home Estab. 10.1.24. F. H. Unwin, O.B.E., to R.A.F. Depot, on transfer to Home Estab. 10.1.24.

*Flight Lieutenants:* H. A. J. Wilson, O.B.E., to H.Q., Mediterranean. 23.12.23. F. Thomasson, D.F.C., M.M., to No. 2 Flying Training Sch., Duxford. 19.1.24. A. P. V. Daly, to R.A.F. Depot (non-effective pool), on transfer to Home Estab. 30.12.23. L. A. K. Butt, to Armament and Gunnery Sch., Eastchurch, on transfer to Home Estab. 10.1.24. E. H. Hooper, to R.A.F. Depot, pending disposal on transfer to Home Estab. 30.12.23. T. L. G. Pynches, to Aeroplane Experimental Estab., Martlesham Heath.

7.2.24. L. G. Le B. Croke, to R.A.F. Base, Gosport. 28.1.24. C. E. V. Porter, R. Harrison, D.F.C., and J. Lawson, all to R.A.F. Depot, on transfer to Home Estab. 10.1.24. R. T. B. Houghton, A.F.C., to R.A.F. Depot, on transfer to Home Estab. 30.12.23. F. W. Trott, O.B.E., M.C., to No. 24 Sqdn., Kenley. 4.2.24. E. A. Fawcus, to No. 1 Sch. of Tech. Training (Boys), Halton. 1.2.24. J. B. P. Angel, to Inland Area Aircraft Depot, Henlow. 6.2.24. R. S. Sorley, D.S.C., D.F.C., and S. D. Culley, D.S.O., both to R.A.F. Depot, on transfer to Home Estab. 10.1.24. H. N. Hampton, D.F.C., to R.A.F. Depot, on transfer to Home Estab. 23.12.23.

*Flying Officers:* W. Sanderson, A.F.C., to R.A.F. Depot, pending disposal on transfer to Home Estab. 8.1.24. H. F. Luck, J. A. Stedman, C. D., Robertson, M.M., P. W. Adams, and T. J. Shaw, all to R.A.F. Depot (non-effective pool), on transfer to Home Estab. 30.12.23. M. H. Aten, D.F.C., to No. 12 Sqdn., Northolt, on transfer to Home Estab. 23.12.23. T. W. Shortridge, to Sch. of Army Co-operation, Old Sarum, on transfer to Home Estab. 23.12.23. M. J. Du Cray, to R.A.F. Depot, on appointment to a short service commn. 23.1.24. J. C. Stevens, to R.A.F. Base, Malta (No. 481 Flight). 23.12.23. G. N. Coward, to No. 1 Flying Training Sch., Netheravon. 14.1.24. M. W. Nolan, to Sch. of Tech. Training (Men), Manston. 4.2.24. J. R. Bell, D.F.C., J. Duncan, and R. Menzies, all to R.A.F. Depot, on transfer to Home Estab. 10.1.24. W. G. Kentfield, J. C. Dunbar, H. H. S. Scott, D.S.M., and G. W. Birkinshaw, all to R.A.F. Depot, on transfer to Home Estab. 30.12.23. A. E. Woodbridge, B. T. Hood, E. H. Rundle, E. H. Searle, and F. R. Eason, all to R.A.F. Depot, on transfer to Home Estab. 10.1.24.

## FORMATION OF HOME DEFENCE AREA

CONCERNING the appointments to new commands of six air commodores, which are believed to foreshadow the formation of a Home Defence Area planned on a much larger scale than the existing Inland Area, *The Times*, on February 5, said:—

The new commands must be taken in conjunction with the recent announcement that Air-Marshal Sir John Salmond, K.C.B., C.M.G., C.V.O., D.S.O., the Air officer commanding the Iraq command, is coming home in April, and that Air Vice-Marshal J. F. A. Higgins, C.B., D.S.O., A.F.C., the Air officer at present commanding the Inland Area, is leaving this month for Iraq, to take over Sir John Salmond's command. It is generally understood that Air-Marshal Sir John Salmond, after a period of leave, will assume an important position in connection with home defence, the command of which will in that case be raised to Air-Marshal's rank. The fact, therefore, that Air Vice-Marshal Higgins is to be succeeded, as shown by the new appointments, by an officer of air commodore rank is interesting. It points to the inclusion of the Inland Area as part of the wider home defence scheme. The new commander of the Inland Area, who begins his duties in March, is Air Commodore T. I. Webb-Bowen, C.B., C.M.G., who has seen much service in France and Italy, and was afterwards in command in India. He was succeeded by Air Vice-Marshal Game, C.B., D.S.O., who came home last year and is now Air Member for Personnel, another important post at the present juncture in the development of the Royal Air Force. Air Commodore Webb-Bowen now holds the command of No. 3 Group of the Inland Area, and will be succeeded in his present post by Air Commodore L. E. O. Charlton, C.B., C.M.G., D.S.O., who went out with the original R.F.C. squadrons with the Expeditionary Force as a flight commander. He holds a D.S.O. won in the South African War, has been mentioned in despatches eight times, and acted as our first Air Attaché at Washington.

Another appointment which reflects the increasing importance of the Royal Air Force in the defences of the Empire is that of Air Commodore E. L. Gerrard, C.M.G., D.S.O., to the Palestine command from April 1, for it means that an Air officer will now be in full command of all the troops in that area. At present Major-General Sir Henry H. Tudor holds the command, and is seconded by the War Office to the Colonial Office for duty as G.O.C. the Forces in Palestine and Trans-

jordan and as Director of Public Security. In the former capacity he is under the orders of the Air Ministry, who are responsible to the Colonial Office for the military control of this area. In order to occupy that position he was given the temporary Royal Air Force rank of Air Vice-Marshal, and the command will now revert to an Air officer as part of the policy of controlling an area by means of an air force instead of the more costly maintenance of garrisons of ground troops.

Air Commodore C. L. Lambe, C.B., C.M.G., D.S.O., who will take over the command at Halton, the large aircraft mechanics' training centre of the R.A.F., at the end of the month, is a former naval officer. He earned the D.S.O. for his work in the operations of the R.N.A.S. off the Belgian coast, and was mentioned for the part he took in the operations at Ostend in August, 1918. Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., who will succeed Air Commodore Gerrard in command of No. 1 Group, Kenley, is another former R.N.A.S. officer with a distinguished career. He has held air commands in the Mediterranean, and will be remembered for the air reconnaissances and bombing raids he carried out during September and October, 1914, with the early British aeroplanes, and for his enterprise and ability in the operations which led to the recapture of Lille within the first month of the War.

The last appointment, that of Air Commodore F. C. Halahan, C.M.G., C.B.E., D.S.O., M.V.O., to the Department of the Air Member for Supply and Research of the Air Ministry, is the most interesting of all, in view of the recent announcement that the position of Director of Research is to be divided in April into two directorates—one of Technical Development and the other of Scientific Research. Air Commodore Halahan has seen service in the Navy, and went to France with the R.N.A.S. in 1916, being subsequently in command of No. 5 Group, Dunkirk. He has had much experience in the Aeronautical Inspection Department, and is at present supernumerary on special duty with the Coastal Area. The fact that his attachment to the Supply and Research Department on April 1 coincides with the date of the creation of the new directorates, and that it has already been announced that the post of Technical Development Director is to be a military appointment held by a senior officer, leaves little doubt in the Service as to who will hold the new post.

# AIR POST STAMPS

By DOUGLAS B. ARMSTRONG

"They do these things better in France"

AIR post collectors must needs echo the sentiments of Laurence Sterne, when it is to France they must go for the most comprehensive and reliable guide to the world's air stamps and covers. Considering the extensive vogue of aero collecting in the Anglo-Saxon countries, it is surprising that no philatelic publisher has been found with sufficient enterprise to produce an adequate catalogue for use of the "fancy" in English text and currency. Yet, it is from Paris that we have just received that third edition of the aero-philatelist's *vade mecum*,\* with its wealth of information and abundant illustrations. Prices, as might be expected, have stiffened considerably during the last two years, but the compiler declares that they are based on "personal knowledge, on the actual state of the market, and on the results obtained at auction by certain notable air post covers."

\* Catalogue Historique et Descriptif des Timbres de la Poste Aérienne (1924) Paris: Maison Th. Champion, 13, Rue Drouot, M. 15.

## Values

QUOTATIONS are given for mint specimens and for those used on flown covers only, experience having shown that the majority of aero-philatelists eschew used air stamps off the cover. This point is further emphasised by a reduced illustration of an album page showing a single mint stamp and the same used on entire. The value of specimens used on a piece of the cover only is considered to be proportionately less, and there can be little doubt that the cult of the aero-cover has come to stay. The importance of "first flights" over regularly operated air lines is emphasised, and a word of caution uttered concerning the existence of certain counterfeits.

## Rarities

It is instructive to examine the valuations placed by M. Champion (than whom there is no greater authority) upon the *rare aves* of the air post, taking 90 francs to the pound sterling as the mean rate of exchange. Thus we find the "Hawker" stamp priced at 3,000 fr., both used and unused, although the latter is probably rather the better. A mint "Alcock" is valued at 110 fr., but used on the actual day of the flight soars to the dizzy height of 2,000 fr. The Koh-i-noor of aero-philately, the 24 cents U.S.A., with inverted centre, is quoted at the more or less fixed price of 12,500 fr.

## The Rising Tide

THE first Colombian (official) air stamp is priced at 750 fr. unused, and 900 fr. used on cover, whilst 175 fr. is the valuation already put upon the latest Danzig error 5 millionen on 10,000 mks. The two Japanese air stamps on flown covers have been raised by 75 and 175 fr. respectively. The 75 c. blue Morocco (Service Postal Aérienne) has jumped from 1.25 fr. to 12.50 fr. unused, and 17.50 fr. on cover. The imperforate 50 centimos recently noted in this column is listed but not priced.

Another big increase is provided by the Mexican aero stamp now quoted at 125 fr. used, as compared with only 25 fr. in 1922. Thirty and 75 fr. respectively are asked for the 45 r. Russia overprinted with an aeroplane device, the total issue of which is said to have comprised 100,000 copies. The Uruguayan varieties also have all been moved up.

Amongst the semi-officials we find the first Bock-Bruck label, priced unused at 500 fr., the Gotha used at 750 fr., and the Rhine-Dusseldorf (Zeppeline post) at 450 fr. For the Ross-Smith souvenir label, of which only 30 are believed to have survived, 6,000 fr. seems a modest enough demand. No quotation is offered for the extremely rare Costa Rica air stamp, nor yet for the Berlin-Moscow official service of July, 1922, nor the Siamese air post overprint. Many of the Swiss semi-officials are highly valued, and we note the Lugano issue, flown, at 350 fr., the Bale-Liestal at 300 fr., and Burgdorf-Bern at 250 fr.

## Covers

SOUVENIR cards and covers bearing early air post markings show some startling rises, such as the first South African air post, valued at 600 fr.; Nassau-Miami flight, 400 fr.; E.E.F. aerial post, 225 fr.; and the first New York-Washington air mail, 300 fr.

Covers showing the special postmarks applied to letters brought from America by the dirigible "R.34" are valued at 3,500 fr. each. The ordinary London-Windsor card of 1911 commands only 60 fr., which is also the price asked for the more recent Lympne glider post covers. From 100 to 200 fr., according to the amount of postage, is the valuation placed upon flown covers carried by the "First Aerial Post" at the Allahabad Exhibition in 1911.

Before leaving the subject of valuations it should be clearly understood that the prices quoted are those at which the various items are offered for sale by the publisher, and, whilst affording a reliable guide to comparative scarcity of the stamps or covers, do not necessarily represent what can be obtained for them in the open market.

Apart from the all-important matter of prices, the new Champion contains a vast amount of useful data relating to the various air posts, much of which is new and throws light upon some hitherto obscure points. With some of these we hope to deal in a future article.

## SOCIETY OF MODEL AERONAUTICAL ENGINEERS

At the Annual General Meeting, held on January 31, the following were elected for 1924:—Dr. A. P. Thurston, President; A. F. Houlberg, Chairman; W. E. Evans, Hon. Treasurer; A. E. Jones, Hon. Secretary; C. B. Turner, Competition Secretary; B. K. Johnson, Technical Secretary.

The question of affiliated clubs was gone into, and the following rules governing same were passed, viz.:—

- The affiliation fee for senior clubs to be £2 2s. per annum; junior clubs, 10s. 6d. Junior clubs to have an average age not exceeding 16 years.
- The acceptance of the Council must be obtained by any club wishing to be affiliated. The Council may refuse affiliation without disclosing the reason.
- Members of affiliated clubs may attend all lectures and ordinary meetings of the society and enter all club competitions without fee.

It was decided that competitions for 1924 should be arranged as follows:—

March 30.—Parliament Hill. Freshman's prize.

May 18.—Sudbury. Weston Cup, M.E.1, K. and M.A.A.

June 22.—Wimbledon. Kelly Cup, Shelley Cup, Pilcher Cup.

July 20.—Wanstead. FLIGHT Cup, Gamage Cup, M.E.2 Cup.

Special notice should be taken of the following rules by members and non-members, viz.:—In handicap competitions the formula will be "Duration in seconds, multiplied by the square root of the loading in ounces per square foot." Also that models rising off the ground (both fuselage and spar types) will in future receive 12 points.

A. E. JONES, Hon. Sec.

A few enthusiasts are endeavouring to form a Model Aeronautical Society in South London. Anyone interested (juniors particularly) is invited to write to Mr. L. G. H. Tucker, 110, Harborough Road, Streatham, S.W. 16.

## PUBLICATION RECEIVED

*Aeronautical Research Committee, Reports and Memoranda:* No. 764 (Ae. 46).—Experiments on Rigid Airship R.38 (Z.R.2). By R. A. Frazer and H. Bateman. November, 1921. Price 2s. 6d. net. No. 862 (Ae. 101).—On the Aerodynamic Characteristics of Parachutes. Compiled by R. Jones. June, 1923. Price 5s. net. No. 874 (M.N. 6).—Preliminary Report on the Forced Oscillations of Aircraft Compasses. By Flight Lieut. R. S. Capon and Dr. Lee. July, 1920. Price 9d. net. London: H.M. Stationery Office, Kingsway, W.C. 2.

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